

REMARKS

This Amendment is fully responsive to the final Office Action dated October 26, 2011, issued in connection with the above-identified application. Claims 1-17 are pending in the present application. With this Amendment, claims 1-3, 5-9 and 12-17 have been amended; and claim 4 has been cancelled without prejudice or disclaimer to the subject matter therein. No new matter has been introduced by the amendments made to the claims. Favorable reconsideration is respectfully requested.

I. Interview Summary

The Applicants thank Examiner Chokshi for granting the telephone interview (hereafter “interview”) with the Applicants’ representative, which was conducted on January 10, 2012. During the interview, the rejection under 35 U.S.C. 112, second paragraph; and the prior art rejections were discussed in detail.

With regard to the rejection under 35 U.S.C. § 112, second paragraph, the Examiner alleges that the limitation “...each of the pieces of segmented data having a data amount adjusted based on a transmission speed which enables communication...” recited in each of the independent claims is unclear. The Examiner suggested deleting the term “pieces.”

With regard to the prior art rejection, it was noted that Zhang discloses transmitting and receiving a stream for a base layer on a 3G network and a stream for a layer for high display quality on a WLAN. Thus, Zhang discloses the playback of a stream in the low to middle display quality in the 3G area.

Although Zhang also discloses that the base layer can be synthesized with a layer of a higher quality to produce a stream having a higher quality, Zhang appears to assume that the transfer rate of the 3G is always Rg. Thus, in the case where the 3G transmission rate becomes lower or no transmission is possible at the 3G transmission rate, the system and method disclosed by Zhang cannot transmit and receive the base layer.

With the present invention (as recited in independent claim 1), a content reproduction device can properly reproduce the base layer even though the 3G transmission rate becomes lower or no transmission is possible at the 3G transmission rate by segmenting a stream into pieces, and transmitting and receiving the segmented pieces.

During the interview, the possibility of amending the independent claims was also discussed. The Examiner suggested amending the independent claims to include the features of

claim 4, to point out that the segmented data is of the same content and to point out more clearly the advantages of the present invention. It was suggested that some of the language from paragraph [0158] be added to the independent claims, which states that streaming reproduction is achievable even when the transmission speed of one communication unit is less than a transmission speed assigned to the content for streaming.

At the conclusion of the interview, the Examiner suggested that such claim amendments to the independent claims would help to distinguish the claims from the cited prior art. However, the Examiner also indicated that further search and consideration of the prior art would be necessary before making a final determination regarding the allowability of the claims.

II. Rejection under 35 U.S.C. 112, Second Paragraph

In the Office Action, claims 1, 7-9 and 12 are rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. The Examiner alleges that the limitation "...each of the pieces of segmented data having a data amount adjusted based on a transmission speed which enables communication..." recited in each of the independent claims is unclear.

During the interview conducted on January 10, 2012, the Examiner suggested deleting the term "pieces." Accordingly, the Applicants have amended the claims to remove the term "pieces," as suggested by the Examiner. Withdrawal of the rejection to claims 1, 7-9 and 12 under 35 U.S.C. § 112, second paragraph, is respectfully requested.

III. Prior Art Rejections

In the Office Action, claims 1, 8 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Naruse (US 2002/0183026, hereafter "Naruse") in view of Markman, (US 2003/022966, hereafter "Markman"), Zhu (US 2008/0183767, hereafter "Zhu") and Zhang (US 7,133,486, hereafter "Zhang"); claims 2-4, 7, 9 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Naruse in view of Markman, Zhu, and Zhang, and further in view of Ji (US 2005/0043999, hereafter "Ji"); and claims 12, 14 and 15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Naruse in view of Markman, Zhang, Ji, and further in view of Uhlik (US 2007/0112948, hereafter "Uhlik").

The Applicants have amended independent claims 1, 7-9 and 12 to more clearly distinguish the claims from the cited prior art. Independent claims 1, 7-9 and 12 have been amended to be consistent with the suggestions made by the Examiner during the interview

conducted on January 10, 2012. For example, independent claim 1 (as amended) recites the following features:

"[a] content reproduction device that performs streaming reproduction of a content, the device comprising:

a plurality of communication units that receive, in parallel, segmented data of a content, the content being a same content, transmitted from a content transmission device over a communication path, a part of the segmented data of the content being received by one of the plurality of communication units and another part of the segmented data of the content being received by another one of the plurality of communication units, the segmented data having data amounts adjusted based on a transmission speed which enables communication;

a content reconstruction unit having a buffer in which the segmented data received by the plurality of communication units is temporarily accumulated, and that reconstructs the segmented data accumulated in the buffer into the content;

a reproduction unit that extracts the content from the buffer at a predetermined bit rate and that reproduces the content at the predetermined bit rate, the content having been reconstructed by the content reconstruction unit;

a communication fee storage unit which stores, in advance, communication fees of the plurality of communication units; and

a communication control unit that:

calculates, for every predetermined time, target transmission speeds to be assigned for content reception by causing the target transmission speeds to associate respectively with the plurality of communication units, based on free space in the buffer and the bit rate; and

transmits a first request signal indicating the calculated target transmission speeds corresponding to the plurality of communication units to the content transmission device via one of the plurality of communication units,

wherein the segmented data includes counters indicating an order of the segmentation performed by the content transmission device, and the content reconstruction unit reconstructs the content by extracting the segmented data accumulated in the buffer in the order of values indicated by respective counters,

wherein the content transmission device transmits the segmented data of the content to be received, in parallel, by the plurality of communication units at a transmission speed adjusted

based on the first request signal, and the plurality of communication units receive, in parallel, the segmented data of the content transmitted from the content transmission device at the transmission speed adjusted by the content transmission device based on the first request signal,

wherein the communication control unit determines the target transmission speeds of the plurality of communication units based on the communication fees, and

wherein the streaming reproduction is achievable even when the transmission speed of one communication unit is less than a transmission speed assigned to the content for streaming.”
(Emphasis added).

The features emphasized above in independent claim 1 are similarly recited in independent claims 7-9 and 12 (as amended). Additionally, the features emphasized above in independent claim 1 (and similarly recited in independent claims 7-9 and 12) are fully supported by the Applicants' disclosure.

The present invention (as recited in independent claim 1) is believed to be distinguished from the cited in that a plurality of communication units receive, in parallel, segmented data of a same content over a communication path, wherein a part of the segmented data is received by one of the plurality of communication units and another part of the segmented data is received by another one of the plurality of communication units and the segmented data has data amounts adjusted based on a transmission speed which enables communication.

The streaming reproduction is achievable even when the transmission speed of one communication unit is less than a transmission speed assigned to the content for streaming. Additionally, streaming communication fees of the plurality of communication units are stored in advance and transmission speeds of the plurality of communication units can be based on the communication fees. The features noted above with reference to independent claim 1 are similarly recited in independent claims 7-9 and 12.

Thus, with the present invention (as recited in independent claims 1, 7-9 and 12), the same content is segmented by transmission speed (e.g., bit rate) so that each of the communication units can transmit and receive the segmented content. Thus, the present invention (as recited respectively in independent claims 1, 7-9 and 12) is able to achieve streaming reproduction of the content even when the maximum transmission speed of one of the communication units is below the rate of the streaming content.

In the Office Action, although the Examiner relies on the combinations of Naruse, Markman, Zhu and Zhang; Naruse, Markman, Zhu and Zhang and Ji; and Naruse, Markman, Zhang, Ji, and Uhlik for disclosing or suggesting, respectively, the features of independent claims 1, 7-9 and 12, the Examiner appears to rely specifically on Zhang and Ji for disclosing or suggesting the features now emphasized above in independent claim 1 (and similarly recited in independent claims 7-9 and 12). Specifically, the Examiner relies on col. 9, lines 10-59 of Zhang and on paragraphs [0003], [0022] and [0041] of Ji.

As noted above, independent claims 1, 7-9 and 12 have been amended to be consistent with the suggestions made by the Examiner during the interview conducted on January 10, 2012. Thus, independent claims 1, 7-9 and 12 should be distinguished from the cited prior art for similarly reasons noted during the interview.

As noted during the interview, Zhang in col. 9, lines 10-59 discloses a first radio access network that has a first data transfer rate and a second radio access network that has a second data transfer rate that is faster than the first data transfer rate. As described in Zhang, a video program is downloaded, via the first or the second radio access network. Thus, Zhang, in this portion, does not suggest that the video program is downloaded, in parallel, by using the first radio access network and the second radio access network, but by using the first or the second radio access network.

The Examiner then noted that Zhang in col. 9, lines 27-34 appears to suggest that a mobile terminal can begin downloading a next layer of the video program, even if a current or preceding layer of the video program is still being downloaded, which suggests downloading in parallel. However, the Examiner also agreed that it was not clear, in Zhang, if the video program being downloaded by the different terminals was, in fact, the same segmented content.

Thus, the Examiner suggested amending the independent claims to point out that the segmented data is of the same content and to point out more clearly the advantages of the present invention. Accordingly, independent claims 1, 7-9 and 12 have been amended to be consistent with the suggestions made by the Examiner. Thus, the Applicants assert that Zhang fails to disclose or suggest at least the following features now recited in independent claim 1:

“a plurality of communication units that receive, in parallel, segmented data of a content, the content being a same content, transmitted from a content transmission device over a communication path, a part of the segmented data of the content being received by one of the

plurality of communication units and another part of the segmented data of the content being received by another one of the plurality of communication units, the segmented data having data amounts adjusted based on a transmission speed which enables communication.” and

“wherein the streaming reproduction is achievable even when the transmission speed of one communication unit is less than a transmission speed assigned to the content for streaming.”

These features are similarly recited in independent claims 7-9 and 12.

The most relevant portions of paragraphs [0003], [0022] and [0041] of Ji disclose that wireless access to a network is based on a pay-per-use basis. More specifically, when a user pays a fee, the wireless connection becomes available for use (e.g., time duration or amount of data transfer), which can vary depending on the amount of money paid.

Independent claim 1, on the other hand, now recites:

“a storage step of storing, in advance, communication fees of the plurality of communication units” and

“wherein the communication control unit determines the target transmission speeds of the plurality of communication units based on the communication fees.” These features are similarly recited in independent claims 7-9 and 12.

As noted during the interview, nothing in Ji (i.e., paragraphs [0003], [0022] and [0041]) discloses determining a target transmission speed of a communication unit that receives the segmented data based on a fee paid. Ji (i.e., paragraphs [0003], [0022] and [0041]) merely discloses paying a fee for wireless access to a network. Thus, the Examiner suggested amending the independent claims to include the features of claim 4.

As noted above, the Applicants have amended independent claims 1, 7-9 and 12 to include the features of claim 4 regarding the use of pre-stored fees to determine target transmission speeds.

Thus, as amended, independent claims 1, 7-9 and 12 are believed to be clearly distinguished from the cited prior art noted above.

In the Office Action, claims 5 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Naruse in view of Markman, Zhu, and Zhang, and further in view of Takamura (US 2004/0045027, hereafter “Takamura”); claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Naruse in view of Markman, Zhang, Ji, and Uhlik, and further in view of Zhu; and claims 16 and 17 are rejected under 35 U.S.C. § 103(a) as being

unpatentable over Naruse in view of Markman, Zhang, Ji, and Uhlik, and further in view of Takamura.

Claims 5 and 6 depend from independent claim 1; and claims 13, 16 and 17 depend from independent claim 12. As noted above, the combinations of Naruse, Markman, Zhu and Zhang; and Naruse, Markman, Zhang, Ji, and Uhlik fail to disclose or suggest, respectively, all the features recited in independent claims 1 and 12. Moreover, Takamura fails to overcome the deficiencies noted above in the combination of Naruse, Markman, Zhu and Zhang; and Naruse, Markman, Zhang, Ji, and Uhlik. Accordingly, no combination of Naruse, Markman, Zhu and Zhang; and Naruse, Markman, Zhang, Ji, and Uhlik with Takamura would result in, or otherwise render obvious, claims 5, 6, 13, 16 and 17 at least by virtue of their respective dependencies from independent claims 1 and 12.

IV. Conclusion

In light of the above, the Applicants submit that all the pending claims are patentable over the prior art of record. The Applicants respectfully request that the Examiner withdraw the rejections presented in the outstanding Office Action, and pass the present application to issue. The Examiner is invited to contact the undersigned attorney by telephone to resolve any issues remaining in the application.

Respectfully submitted,

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